technical publication

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Revision 2

suinsa medical systems s.a.

SG80/120

VERTICAL BUCKY STAND

PRE-INSTALLATION MANUAL

CE 318

This product bears a CE marking in accordance with the provisions of directives 93/42/ECC

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REVISION HISTORY

REVISION	DATE	REASON FOR CHANGE
0	21/10/2004	FIRST EDITION
1	22/02/2005	UPDATES,
2	10/09/2007	UPDATES

MANUAL IMPROVEMENT RECOMMENDATION

suinsa *Medical Systems s.a.* is the most interested in improving the quality of the Technical Documentation provided with its products. Please make us know any improvement suggestion or correction.

Please fax or email to suinsa Documentation Department, indicating:

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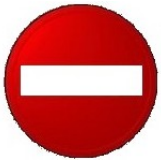
PRELIMINARY IMPORTANT PRECAUTIONS

ADVISORY SYMBOLS

Please pay attention to messages containing a DANGER, WARNING, CAUTION or NOTE symbol. These are symbols used in **suinsa** manuals with next meanings:



DANGER

DANGERS ADVISE OF CONDITIONS OR SITUATIONS THAT IF NOT HEEDED OR AVOIDED WILL CAUSE SERIOUS PERSONAL INJURY OR DEATH.

WARNING

WARNINGS ADVISE OF CONDITIONS OR SITUATIONS THAT IF NOT HEEDED OR AVOIDED COULD CAUSE SERIOUS PERSONAL INJURY OR CATASTROPHIC DAMAGE OF EQUIPMENT OR DATA.

CAUTION

Cautions advise of conditions or situations that if not heeded or avoided could cause personal injury or damage to equipment or data.

NOTES

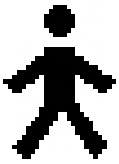
Notes alert to pertinent facts and condition. Notes represent information that is important to know but which do not necessarily relate to possible injury or damage to equipment.

The following are examples of some of the warning labels that may be found.

Warning label indicates a specific warning if displayed in conjunction with warning text.

Radiation danger label.

High voltage warning label Indicates the presence of high voltage.



According to the type of protection against electric shock TYPE B.

ESD warning label indicates the presence of Electrostatic Discharge Sensitive Devices.

RF interference indicates that RF interference may occur in the vicinity of the equipment marked with this symbol.

Pinch Point Area label indicates where operator should never position any portion of his/her body in the pinch point area; the possibility of severe injury or death that could occur if these warnings are ignored.

Rubbish part disposal symbol indicates that the waste of electrical and electronic equipment must not be disposed as unsorted municipal waste and must be collected separately. Please contact an authorized representative of the manufacturer for information concerning the decommissioning of your equipment.

Protective earth (ground) identifies any terminal which is intended for connection of an external protective conductor to protect against electrical shock in case of a fault.

Earth (ground) terminal. Primarily used for functional earth terminals which are generally associated with test and measurement circuits. These terminals are not for safety earthing purposes but provide an earth reference point.

Red Emergency Stop. Turn following the arrows to unlock the system stop.

LANGUAGE

WARNING

THIS MANUAL IS AVAILABLE IN ENGLISH ONLY.

IF A CUSTOMER SERVICE PROVIDER REQUIRES OTHER LANGUAGE THAN ENGLISH, IT IS THE CUSTOMER RESPONSIBILITY TO PROVIDE TRANSLATION SERVICES.

DO NOT ATTEMPT TO MAKE THE EQUIPMENT PRE-INSTALLATION WORK UNLESS THIS MANUAL HAS BEEN CONSULTED AND IS UNDERSTOOD.

FAILURE TO HEED THIS WARNING MAY RESULT IN INJURY TO THE SERVICE PROVIDER, OPERATOR OR PATIENT FROM ELECTRIC SHOCK, MECHANICAL OR OTHER HAZARDS.

ADVERTISSEMENT

CE MANUEL N'EST DISPONIBLE QU'EN ANGLAIS.

SI LE TECHNICIEN DU CLIENT A BESOIN DE CE MANUEL DANS UNE AUTRE LANGUE QUE L'ANGLAIS, C'EST AU CLIENT QU'IL INCOMBE DE LE FAIRE TRADUIRE.

NE PAS TENTER DE FAIRE LE TRAVAIL DE PRE INSTALLATION SUR LES ÉQUIPEMENTS TANT QUE CE MANUEL N'A PAS ÉTÉ CONSULTÉ ET COMPRIS.

LE NON-RESPECT DE CET AVERTISSEMENT PEUT ENTRAÍNER CHEZ LE TECHNICIEN, L'OPÉRATEUR OU LE PATIENT DES BLESSURES DUES Á DES DANGERS ÉLECTRIQUES, MÉCANIQUES OU AUTRES.

WARNUNG

DIESES-HANDBUCH EXISTIERT NUR IN ENGLISCHER SPRACHE.

FALLS EIN FREMDER KUNDENDIENST EINE ANDERE SPRACHE BENÖTIGT, IST ES AUFGABE DES KUNDEN FÜR EINE ENTSPRECHENDE ÜBERSETZUNG ZU SORGEN.

VERSUCHEN SIE NICHT, DAS GERÁT ZU VORINSTALLATION ARBEIT BILDEN, BEVOR DIESES-HANDBUCH NICHT ZU RATE GEZOGEN UND VERSTANDEN WURDE.

WIRD DIESE WARNUNG NICHT BEACHTET, SO KANN ES ZU VERLETZUNGEN DES KUNDENDIENSTTECHNIKERS, DES BEDIENERS ODER DES PATIENTEN DURCH ELEKTRISCHE.

AVISO

ESTE MANUAL SÓLO EXISTE EN INGLÉS.

SI ALGÚN PROVEEDOR DE SERVICIOS AJENO SOLICITA UN IDIOMA QUE NO SEA EL INGLÉS, ES RESPONSABILIDAD DEL CLIENTE OFRECER UN SERVICIO DE TRADUCCIÓN.

NO SE DEBERÁN HACER LOS TRABAJOS DE PREINSTALACION, SIN HABER CONSULTADO Y COMPRENDIDO ESTE MANUAL.

LA NO OBSERVANCIA DEL PRESENTE AVISO PUEDE DAR LUGAR A QUE EL PROVEEDOR DE SERVICIOS, EL OPERADOR O EL PACIENTE SUFRAN LESIONES PROVOCADAS POR CAUSAS ELÉCTRICAS, MECÁNICAS Ó DE OTRA NATURALEZA.

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WARNING X-RAY EQUIPMENT

X-RAY EQUIPMENT IS DANGEROUS TO BOTH PATIENT AND OPERATOR UNLESS MEASURES OF PROTECTION ARE STRICTLY OBSERVED

Though this equipment is built to the highest standards of electrical and mechanical safety, the useful X-ray beam becomes a source of danger in the hands of the unauthorized or unqualified operator. Excessive exposure to x-radiation causes damage to human tissue.

Therefore, adequate precautions must be taken to prevent unauthorized or unqualified persons from operating this equipment or exposing themselves or others to its radiation.

Before operation, persons qualified and authorized to operate this equipment should be familiar with the Recommendations of the International Commission on Radiological Protection, contained in Annals Number 26 of the IRCP, and with applicable national standards.

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EMC PRECAUTIONS

RADIO FREQUENCY INTERFERENCES

This equipment generates, uses, and can radiate radio frequency energy. The equipment may cause radio frequency interference to other medical or non medical devices and radio communications. To provide reasonable protection against such interference, this product complies with emissions limits for a Group 1, class A Medical Devices Directive as stated in EN 60601-1-2. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment is found to cause interference (which may be determined by turning the equipment on and off), the user (or qualified service personnel) should attempt to correct the problem by one or more of the following measure(s):

- Reorient or relocate the affected device(s),
- Increase the separation between the equipment and the affected device.
- Power the equipment from a source different from that of the affected device,
- Consult the point of purchase or service representative for further suggestions.

To comply with the regulations on electromagnetic interference for a Class A FCC Device, this equipment must be used in shielded areas and all interconnect cables to peripheral devices must be shielded and properly grounded. Use of cables not properly shielded and grounded may result in the equipment causing radio frequency interference in violation of the FCC regulations.

NOTES

It is customer responsibility to assure that this equipment and vicinity equipment complies the value of radio frequency interferences shown in General Regulation for safety acc. IEC 60601-1-2 tables. See service manual or user manual.

NOTES

Do not use devices which intentionally transmit RF Signals (Cellular Phones, Transceivers or Radio Controlled Products) in the vicinity of this equipment as it may cause performance outside the published specifications. Keep the power to these type devices turned off when near this equipment. The medical staff in charge of this equipment is required to instruct technicians, patients, and other people who may be around this equipment to fully comply with the above requirement.

NOTES

The manufacturer is not responsible for any interference caused by using other than recommended interconnect cables or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void users' authority to operate the equipment.

NOTES

This equipment must be used in combination with equipment that satisfies the electromagnetic compatibility requirements according to the actual Standards and Directives.

NOTES

Before using this equipment make sure that all requirements about EMC included in this manual are accomplished.

IEC 60601-1-2 GENERAL REGULATION FOR SAFETY ACC

Collateral standard: Electromagnetic compatibility. Requirement and test

SG80/120 is intended for use in the electromagnetic environment shown in tables below. SG80/120 purchaser, the customer or the user must get sure that this environment is accomplished.

TABLE 201. Electromagnetic Emissions

Guidance and Manufacturer's Declaration for all equipment and systems.

The SG80/120 is intended for use in an electromagnetic environment specified below. The customer or user of the SG80/120 should assure that it is used in such an environment.		
EMISSIONS TEST	**COMPLIANCE**	**ELECTROMAGNETIC ENVIRONMENT GUIDANCE**
RF emissions CISPR 11	**Group 1**	The SG80/120 uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF-emission Acc. CISPR 11	**Class B**	The SG80/120 is suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonic emissions Acc. IEC 61000-3-2	**Class A**	
Voltage fluctuations/ Flicker emissions Acc. IEC 61000-3-3	**Fulfilled**	

TABLE 202. Electromagnetic Emissions

Guidance and Manufacturer's Declaration for all equipment and systems.

The SG80/120 is intended for use in an electromagnetic environment specified below. The customer or user of the SG80/120 should assure that it is used in such an environment.

IMMUNITY TEST	IEC 60601 TEST LEVEL	COMPLIANCE LEVEL	ELECTROMAGNETIC ENVIRONMENT GUIDANCE
Electrostatic Discharge (ESD) acc. IEC 61000-4-2	± 6 kV Contact ± 8 kV Air	± 6 kV Contact ± 8 kV Air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humid-
Electrical fast transient/ bursts acc. IEC 61000-4-4	± 2 kV for Power supply lines ± 1 kV for I/O lines (input/output)	± 2 kV for Power supply lines ± 1 kV for I/O lines (input/output)	Mains power quality should be that of a typical commercial or hospital environment.
Surges acc. IEC 61000-4-5	± 1 kV differential mode ± 2 kV common mode	± 1 kV differential mode ± 2 kV common mode	Mains power quality should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions and voltage variations on power supply input lines acc. IEC 61000-4-11	<5% UT (>95% dip in UT) for 0,5 cycles 40% UT (60% dip in UT) for 5 cycles 70% UT (30% dip in UT) for 25 cycles <5% UT (>95% dip in UT) for 5 s	<5% UT (>95% dip in UT) for 0,5 cycles 40% UT (60% dip in UT) for 5 cycles 70% UT (30% dip in UT) for 25 cycles <5% UT (>95% dip in UT) for 5 s	Mains power quality should be that of a typical commercial or hospital environment. If the user of the SG80/120 requires continued operation during power mains interruption, it is recommended that the SG80/120 be powered from an interruptible power supply or a battery.
Frequency (50/60 Hz) magnetic field acc. IEC 61000-4-8	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial

NOTE U_T is the AC mains voltage prior to application of the test level.

TABLE 208. Electromagnetic Immunity

Guidance and Manufacturer's Declaration of non-life-support equipment or system that is specified for use in shielded locations

The SG80/120 is intended for use in an electromagnetic environment specified below. The customer or user of the SG80/120 should assure that it is used in such an environment.

IMMUNITY TEST	IEC 60601 TEST LEVEL	COMPLIANCE LEVEL	ELECTROMAGNETIC ENVIRONMENT GUIDANCE
Conducted RF acc. IEC 61000-4-6	3 Vrms 150 kHz to 80 MHz	3 Vrms 150 kHz to 80 MHz	The SG80/120 must be used only in a shielded location with a minimum RF shielding effectiveness and, for each cable that enters the shielded location, as shown in tables included.
Radiated RF acc. IEC 61000-4-3	3 V/m 80 MHz to 2,5 GHz	3 V/m 80 MHz à 100 MHz	Field strengths outside the shielded location from fixed RF transmitters, as determined by an electromagnetic site survey, should be less than 3 V/m
			Interference may occur in the vicinity of equipment marked with the following symbol: 

NOTE 1 These guidelines may not apply all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

NOTE 2 It is essential that the actual shielding effectiveness and filter attenuation of the shielded location be verified to assure that they meet the minimum specification.

a) Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast ant TV broadcast cannot be predicted theoretically with accuracy. To access the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the SG80/120 is used exceeds the applicable RF compliance level above, the SG80/120 should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocation the NOVA.

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CERTIFIED ELECTRICAL CONTRACTOR STATEMENT

All electrical installations that are preliminary to positioning of the equipment at the site prepared for the equipment will be performed by licensed electrical contractors. In addition, electrical feeds into the Power Distribution Unit will be performed by licensed electrical contractors. Other connections between pieces of electrical equipment, calibrations, and testing will be performed by qualified **suinsa** *Medical Systems s.a.* personnel. The products involved (and the accompanying electrical installations) are highly sophisticated, and special engineering competence is required. In performing all electrical work on these products, **suinsa** *Medical Systems s.a.* will use its own specially trained field engineers. All of **suinsa** electrical work on these products will comply with the requirements of the applicable electrical codes.

The purchaser of **suinsa** equipment will only utilize qualified personnel (i.e., **suinsa** field engineers, personnel of third-party service companies with equivalent training or licensed electricians) to perform electrical servicing on the equipment.

STANDARDS

This product complies with the safety regulatory requirements of the following standards:

- Council Directive 93/42/EEC concerning medical devices.
- Council Directive 89336/EEC concerning medical devices.

The CE marking label affixed to the product testifies compliance to the Directive.

This product complies with the safety regulatory requirements of the following regulations:

- UNE-EN 60601-1
- UNE-EN-ISO 14971
- CAN/CSA-C22.2 60601-1
- UL Std No 2601.1

The manufacturer **suinsa** *Medical Systems s.a.* is ISO 9001-2000 and EN 13485 certified.

HEAD QUARTERS

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DAMAGE IN TRANSPORTATION

All packages should be closely examined at time of delivery. If damage is apparent, have notation "damage in shipment" written on all copies of the freight or express bill before delivery is accepted or "signed for" by a **suinsa** *Medical Systems s.a.* or an Hospital receiving agent. whether notes or concealed, damage MUST be reported to the carrier immediately upon discovery, or in any event, within 14 days after receipt, and the contents and containers held for inspection by the carrier.

RECYCLING

MACHINES OR ACCESSORIES AT END-OF-LIFE

The elimination of machines and accessories must be in accordance with national regulations for waste processing. All materials and components that could pose a risk to the environment must be removed from the end-of-life machines and accessories (example: dry and wet cell batteries, transformer oil, etc…)

PACKING MATERIALS

The materials used to pack our equipment are recyclable. They must be collected and processed in accordance with the regulations in force for the country where the machines or accessories are unpacked.

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CHAPTER 1. INTRODUCTION

1.1 PURPOSE AND SCOPE OF THIS MANUAL

This manual provides a sequential listing of tasks and procedures for the complete installation of the SG80 and SG120 VERTICAL BUCKY STANDS (referred as SG80/120 in this manual).

1.2. PURCHASER RESPONSIBILITY

The purchaser is responsible of the use, pre-installation and service work, and of the cost of alterations and modifications when not specifically provided in the sales contract.

Delay, confusion and waste of manpower can be avoided by adequate Service and Pre Installation.

Service refers to work necessary to check installation site of X-ray equipment, either a complete system or a part to be added to an existing X-Ray room.

User refers to utilization of machine.

Pre installation work, includes:

- Provision of suitable support structure in the floor, walls or ceiling as necessary for the mounting of the product and components and procurement of required materials
- Installation of required materials before the delivery of system components
- Room lighting.
- Power supply of the required voltage including an emergency-off safety switch in the room.
- Installation of junction boxes of proper size including covers and fittings and locations required by the installation plan.
- Installation of non- electric services.
- Installation of room environment control equipment
- Provision in the room of doors of adequate size for the entry of product and components.

NOTES

Electrical schematics, bill of materials, descriptions, calibration instructions and other information will be provide on demand.

NOTES

The provider will give the information necessary to help the qualified staff of the user repair the equipment parts designated by the manufacturer as repairable.

NOTES

Electrical connections, calibrations and test will be performed by qualified personnel.

1.3 GENERAL SECURITY PRECAUTIONS

Take note of the next advices and security symbols

CAUTION

This equipment may cause radio frequency interferences.

WARNING

THE PROPER USE AND THE SECURE OPERATION PRACTICES WITH X-RAY GENERATOR ARE UNDER THE RESPONSIBILITY OF THE USERS OF SUCH GENERATORS. SUINSA MEDICAL SYSTEMS PROVIDES INFORMATION ABOUT THEIR PRODUCTS AND ASSOCIATED RISKS, BUT DOES NOT ACCEPT ANY RESPONSIBILITY RELATED TO OPERATION AND SECURE PRACTICES AFTER SALE.

WARNING

SUINSA MEDICAL SYSTEMS DOES NOT ACCEPT ANY RESPONSIBILITY ABOUT ANY EQUIPMENT THAT HAS NOT BEEN PRE-INSTALLED, USED, MAINTAINED OR REPAIRED ACCORDING TO THE PRE-INSTALLATION, SERVICE OR USER MANUAL, NEITHER ABOUT EQUIPMENT THAT HAS BEEN MODIFIED IN ANY WAY.

WARNING

NEVER OPERATE THIS EQUIPMENT IN ZONES WHERE A RISK OF EXPLOSION CAN TAKE PLACE. SOAPS AND DISINFECTANTS, INCLUDED THOSE USED IN PATIENTS, CAN CREATE EXPLOSIVE GAS MIXTURES. PLEASE, OBSERVE THE CORRESPONDENT NORMATIVE.

WARNING

DO NOT PLACE LIQUIDS ON THE EQUIPMENT.

WARNING

DO NOT MAKE THE EQUIPMENT TO WORK UNDER DIRECT SOLAR LIGHT OR NEXT TO HEAT SOURCES.

WARNING

DO NOT MAKE THE EQUIPMENT TO WORK UNDER HIGH MAGNETIC FIELDS (MICROWAVES, AMPLIFIERS, ETC) AND ALSO AVOID TO PASS THE WIRES NEXT TO THIS DEVICES.

WARNING

THE EQUIPMENT CAN ONLY BE OPENED BY MAINTENANCE OPERATORS WITH THE SPECIFIC FORMATION.

CHAPTER 2. EQUIPMENT DESCRIPTION

2.1 PRODUCT IDENTIFICATION

BASIC PRODUCT			
PRODUCT NAME	**GE P/N**	**SUINSA P/N**	**DESCRIPTION**
SG120	**2402562-2**	**S0009143**	Rotating and tilting Wall stand model.
SG80	**2402564-2**	**S0009144**	Wall stand model.
OPTIONS			
Patient Support	**2403445-2**	**S0009087**	Patient handgrips
		S0009083	Lateral Bar
		Packages	Packages
Space Bar for SG80	**2402565**	**S0009105**	Space bar
External cassette holder	**2402669**	**S0009642**	External cassette holder

2.2 EQUIPMENT DESCRIPTION

The SG80/120 vertical Bucky stands are designed specifically to handle a full range of applications, from emergency procedures to routine radiographic studies. Their smooth vertical travel enables a wide range of examinations with the patient standing or sitting.

The SG120 offers even greater versatility with a tilting panel, controlled with electromagnetic brakes, for angulation examinations.

The next accessories are available for use with the SG80 and SG120:

- Patient Support Kit (Lateral Bar and Patient Grip) to provide user support during exposures.
- Manual Hanging Cassette Holder to allow table-top exposures on vertical bucky stand.
- SG80/120 vertical bucky stands comply with all standard medical regulations (UL, 21CFR, CSA, NRTL/C, CE, IEC).

2.3 NOMENCLATURE AND PARTS OF THE EQUIPMENT

See below, in figure 1, the main parts of the SG80/120 vertical bucky stand.

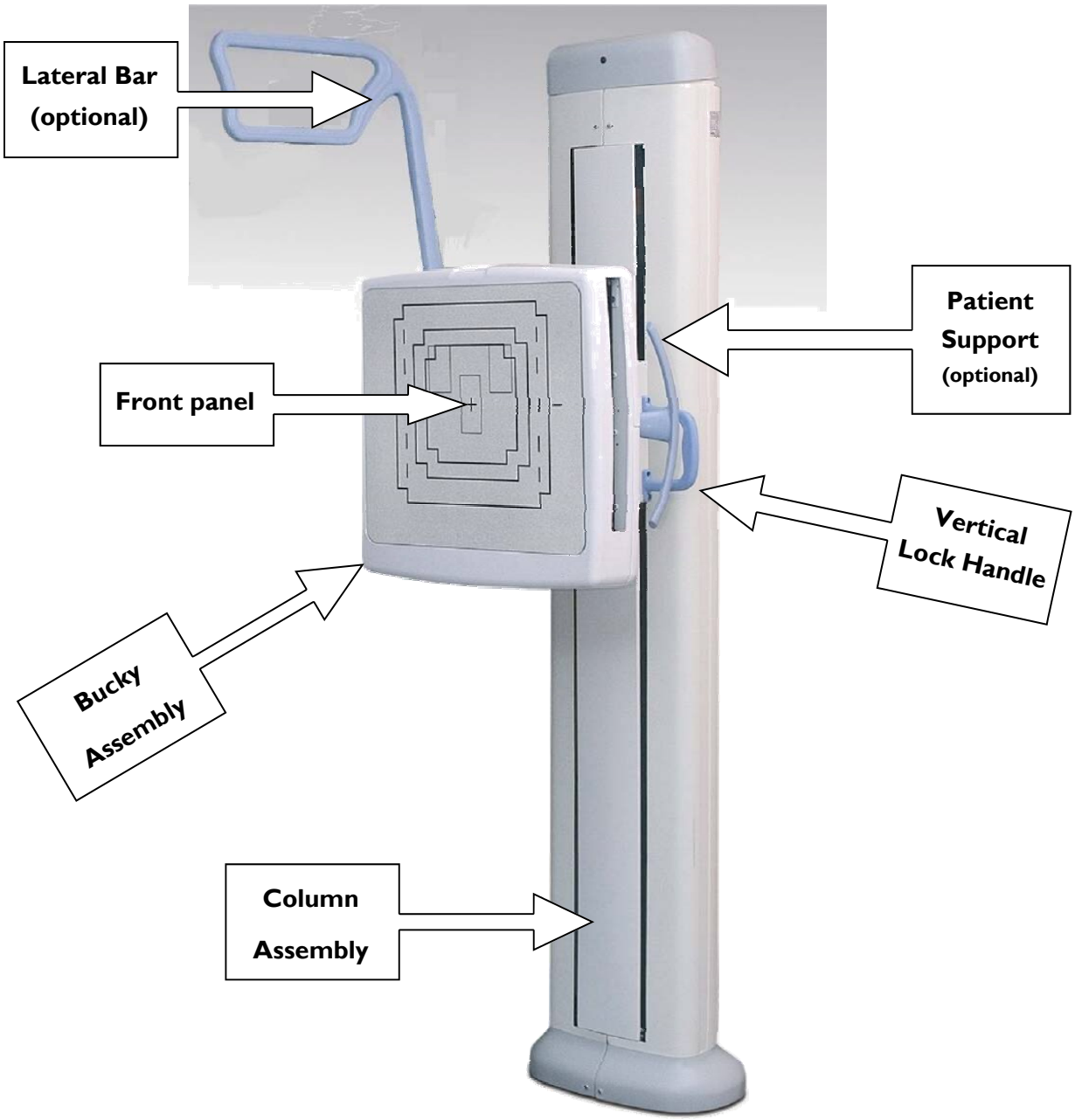

Figure 1. Product Visualization.

2.3.1 COLUMN ASSEMBLY

The column assembly includes the following main parts:

- **Bucky support assembly**: joins the column assembly to the bucky assembly by means of the vertical carriage that moves along the guide on the column. Includes the vertical lock handle to control the vertical movement of the bucky assembly.

- **Covers**: give the final appearance to the equipment.

CAUTION

Be careful with covers handling to avoid scratches.

- **Counterweights**: permit to counterbalance the bucky assembly to enable it to be moved smoothly along the vertical direction.

- **Column Stand:** it is the main part of the column assembly. It is fixed to the floor and is in charge of holding all the elements.

- **Main cabling and electronic devices**: in the column assembly, the equipment cables and electronic boards are located.

2.3.2 BUCKY ASSEMBLY

Includes the bucky, which is mounted to the bucky support behind the front panel. Includes a cassette tray, suitable for all standard cassette sizes.

In the bucky assembly, there are also other parts located , such as the grid (optional) and the ion chamber, used for AEC exposures.

2.3.3 FRONT PANEL

Includes a carbon fibre manufactured barrier of dimensions 562 x 510 x 3, with an absorption of maximum 0.65 mm Aluminium equivalent at 100 KVp.

2.3.4 VERTICAL LOCK HANDLE

The vertical lock handle enables to displace the bucky carriage holding the bucky assembly along the column stand. It is left-right field configurable.

CAUTION

Do not use the vertical lock handle with another intention but to move the bucky assembly.

CHAPTER 3. EQUIPMENT SPECIFICATIONS

3.1 ENVIRONMENTAL REQUIREMENTS

PRODUCT	RELATIVE HUMIDITY (%)		AMBIENT TEMPERATURE (°C)	
	MIN	MAX	MIN	MAX
SG80 SG120	OPERATING			
	20	85	10 (50°F)	40 (104°F)
	TRANSPORT AND STORAGE			
	10	95	-20 (-4°F)	70 (158°F)

ALTITUDE				ATMOSPHERIC PRESSURE			
OPERATING		STORAGE		OPERATING		STORAGE	
MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
-30.5 m.	2440 m.	-30.5 m.	3000 m.	650 hPa	1060 hPa	500 hPa	1060 hPa
-100 ft.	8005 ft.	-100 ft.	9842 ft.				

3.2 DIMENSIONS AND PRODUCT WEIGHT

PRODUCT	DEPTH		WIDTH		HEIGHT	WEIGHT
	MAX	MIN	MAX	MIN		
SG80	373 mm.	373 mm.	652 mm.	652 mm.	2235 mm.	180 Kg.
	14.69 in.	14.69 in.	25.67 in.	25.67 in.	87.99 in.	396.9 lbs.
SG80 With Spacer	637 mm.	637 mm.	652 mm.	652 mm.	2235 mm.	194 Kg.
	25.08 in.	25.08 in.	25.67 in.	25.67 in.	87.99 in.	427.8 lbs.
SG120	927 mm.	687 mm.	915 mm.	652 mm.	2235 mm.	220 Kg.
	36.05 in.	27.05in.	36.02 in.	25.67 in.	87.99 in.	485.1 lbs.

3.3 CRATE DIMENSIONS

PRODUCT	DEPTH	WIDTH	HEIGHT	WEIGHT	
				NET	GROSS
SG80	940 mm.	2410 mm.	890 mm.	180 Kg.	260 Kg.
	37.01 in.	94.88 in.	35.04 in.	396.9 lbs.	573.3 lbs.
SG120	940 mm.	2410 mm.	890 mm.	220 Kg.	300 Kg.
	37.01 in.	94.88 in.	35.04 in.	485.1 lbs.	661.5 lbs.

3.4 ELECTRICAL REQUIREMENTS

FREQUENCY (HZ.)		VOLTAGE (V ~.)		MAX CURRENT (A.)	
MIN	MAX	MIN	MAX	Momentary	Continuous
50	60	115	230	0.4	0.2

NOTES

Power supply and Ground cables are optionally supplied by SUINSA Medical Systems S.A. But this equipment must be necessarily provided of them.

3.5 EQUIPMENT CLASSIFICATION

According to the actual Directives and regulations, this equipment is

- **TIPE B** According to the type of protection against electric shock .
- **CLASS 1** According to the degree of protection against electric shock.
- **IPX0** According to the degree of protection against ingress of water. (Enclosed equipment without protection against ingress of liquids)

3. 6. LABELLING

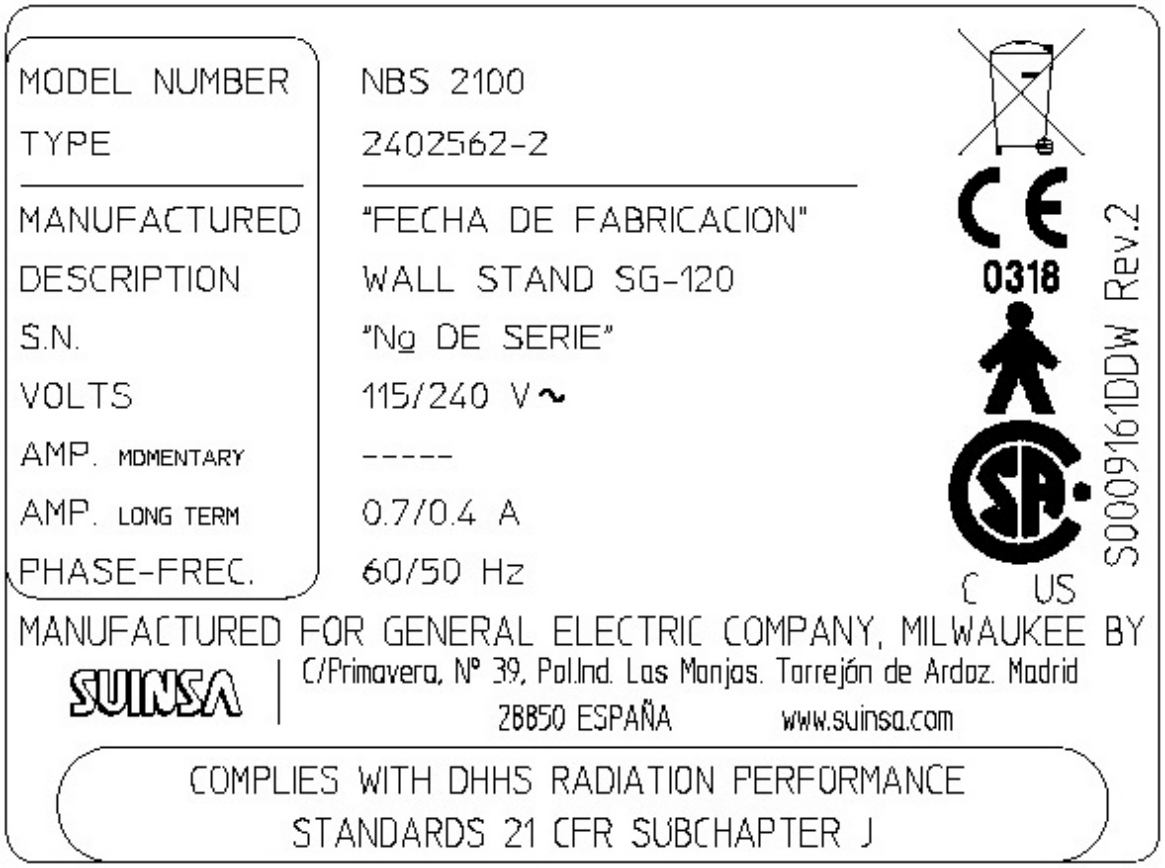

Figure 2. SG120 model labelling.

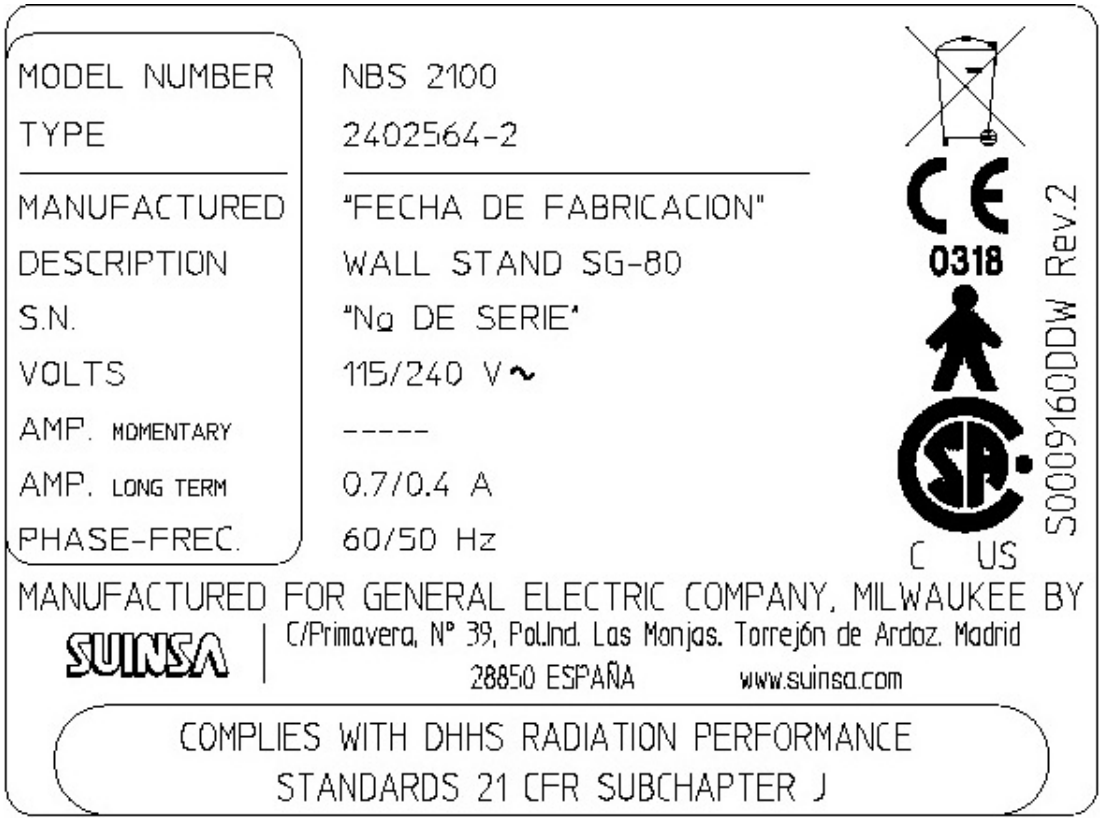

Figure 3. SG80 model labelling.

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4. ROOM SPEFICATIONS

4.1 CONSIDERATIONS

4.1.1 RADIATION PROTECTION

As an X-Ray equipment produces radiation, you may need to take special precautions or make special site modifications. SUINSA Medical Systems does not make recommendations regarding to radiation protection. It is the purchasers responsibility to consult a radiation physicist for advisement on radiation protection in X-Ray rooms.

4.1.2 SERVICE ACCESS

Allow appropriate space for service access of equipment. Consult component pre-installation directions for clearance information.

4.1.3 CLINICAL ACCESS

Make sure that you plan the room with the following clinical access requirements:

- Operators in the control area must have easy access to the control console. However, position the controls (including hand switches) so the operator cannot take exposures while looking around or standing outside the control booth's lead glass window.
- Consult customer on the number and location of non electrical lines (air, oxygen, vacuum, water, etc.) in the vascular room.

NOTES

The generally accepted practice is to load the patient laterally. In case of room layout designed for longitudinal patient loading, some modifications must be brought to the table.

4.1.4 PERIPHERAL EQUIPMENT

Consult hospital personnel regarding additional space requirements for the following types of hospital equipment:

- Storage cabinets
- sinks
- Oxygen stations
- Injectors
- Heart monitoring equipment
- Crash cart

4.2 ROOM LAYOUT DRAWINGS

See figure 5 for a recommended room layout for SG80/120 Vertical Bucky Stand with NOVA Ceiling Suspension, NET 4000 Elevating Table and generator.

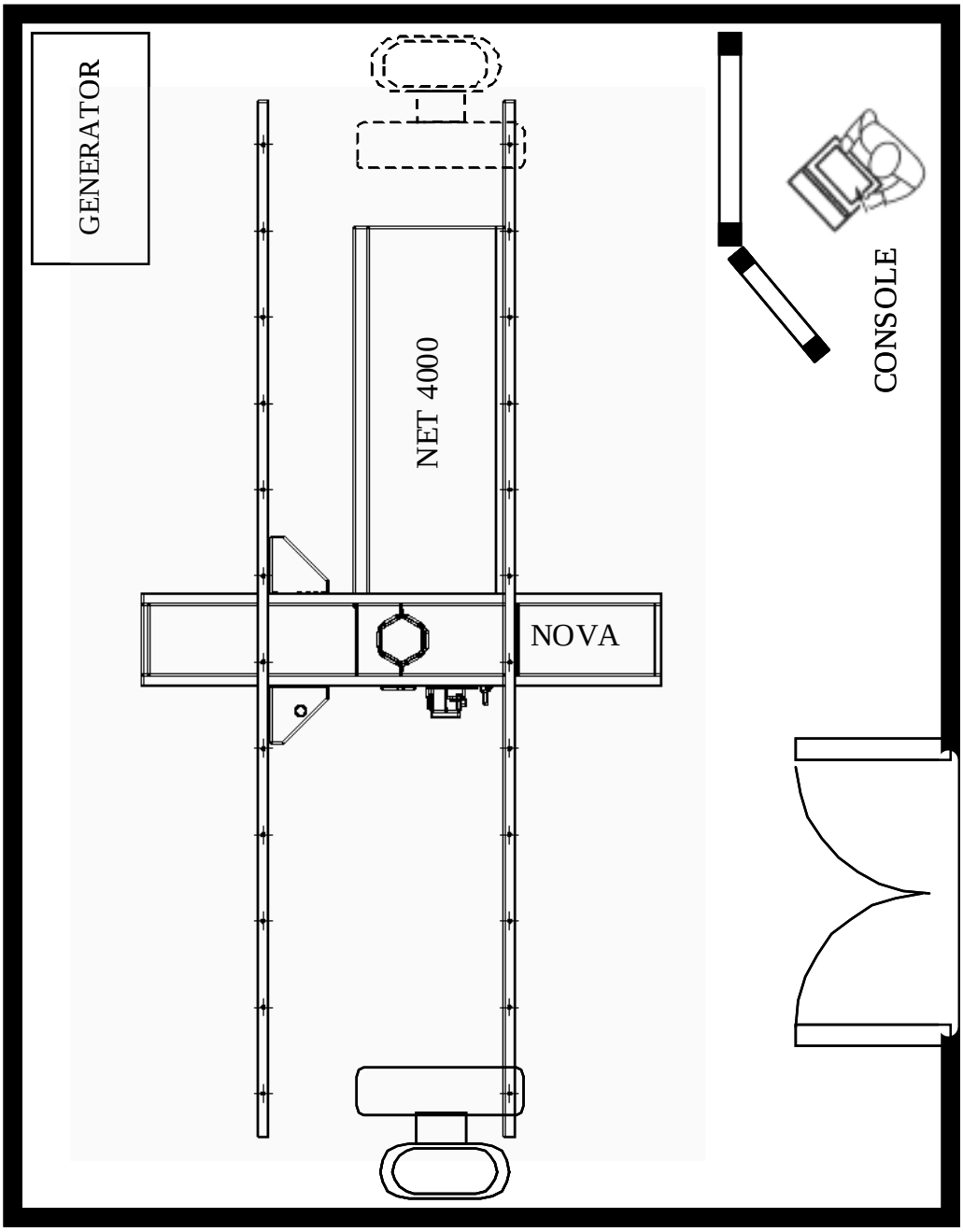
4.3 TOOLS AND TEST EQUIPMENT

The following list summarizes the tools and test equipment needed to install and adjust the NBS2100 Vertical Bucky Stand.

In addition to the standard serviceman's tools the following items are required:

- Drill template P/N S0008819
- Wrench set
- Laser alignment tool

NBS 2100 Rigth Layout



NBS 2100 Left Layout

Figure 5. NBS2100 room layout.

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